2.10 Type 4 Regional NEXRAD Precipitation Image – Global Block Representation

Assigned Product ID # 63.

2.10.1 Definition

This description provides the format for encoding NEXRAD graphic products using the Global Block Representation format described in Section D.2.3.5 of RTCA DO-267A (FIS-B MASPS).

2.10.2 Assumptions

The receiving system can assume that when this product is received from multiple ground stations offering overlapping coverage, the areas of overlap will be assured to register and can be simply merged on the cockpit display. Each broadcasting ground station will typically broadcast product covering a 250 NM radius of the broadcasting ground station.

2.10.3 APDU Format

2.10.3.1 APDU Header

The format of the APDU header used for this product is shown in the Figure below. It follows the APDU Header Format as outlined in Appendix D of RTCA DO-267A with none of the optional fields used for this product; specifically, no Product Descriptor options and no APDU segmentation are used.

The last four zeros show the pad that is required to round out the APDU header to end on a byte boundary. The time field encoded in the APDU header is the time of product creation.

← APDU Header (48 bits) →																						
FIS-B APDU ID (16 bits)	Product Descriptor (14 bits)														Header Time (13 bits)					Pad (4 bits)		
	A f	G f	P F	Product ID (11 bits)											S f	T opt	Hours (5 bits) *(See Note 3)*	Minutes (6 bits) *(See Note 3)*				
(See Note 1)	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0			0	0	0	0

Transmission order →

Notes:

1) The FIS-B APDU-ID is not transmitted in the FAA (FIS-B) network

2) While this product employs the minimal APDU header format shown above, avionics designed for operation on the FAA's network should not preclude the ability to parse ADPUs with any of the optional fields invoked. This will ensure any future products that may employ these optional fields can be processed.

3) The Hours and Minutes fields each have the MSB as the leftmost bit and the LSB as the rightmost bit.

2.10.3.2 Payload

The Global Block Representation geo references individual "bins" of the NEXRAD image to latitude and longitude rather than on a projection requiring a point of tangency. The encoded intensity levels for the individual "bins" map into "dBz" reflectivity levels as shown in the table below.

Intensity Encoding of NEXRAD Composite Reflectivity Product

Intensity Encoded Value	dBz Reflectivity Range	Weather Condition
0	dBz < 5	
1	5 ≤ dBz < 20	
2	20 ≤ dBz < 30	VIP 1
3	30 ≤ dBz < 40	VIP 2
4	40 ≤ dBz < 45	VIP 3
5	45 ≤ dBz < 50	VIP 4
6	50 ≤ dBz < 55	VIP 5
7	55 ≤dBz	VIP 6

Notes:

1) *The color rendering on cockpit displays of the Intensity Encoded Values 2(two) through 7 (seven) should follow the Color Philosophy for the associated Weather Condition as described in Section 3.8.2 (Table 3-2) of RTCA DO-267A (FIS-B MASPS).*

2) *The Intensity Encoded Values 0 (zero) and 1 (one) are considered Background and should be color rendered accordingly.*